

# **Exhibit A**

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*AECL Technologies, Inc. and*  
*Atomic Energy of Canada Limited*

UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY

E-BEAM SERVICES, INC.,

Plaintiff,

-against-

AECL TECHNOLOGIES, INC. and  
ATOMIC ENERGY OF CANADA  
LIMITED, and IOTRON INDUSTRIES  
CANADA, INC.

Defendant.

Civil Action No. 02-2256 (FSH)

**ANSWER AND COUNTERCLAIMS OF AECL  
TECHNOLOGIES, INC. AND ATOMIC  
ENERGY OF CANADA LIMITED**

Defendants AECL Technologies, Inc. ("AECLT") and Atomic Energy of Canada, Limited ("AECL"), through their attorneys, answer the Amended Complaint for Declaratory and Injunctive Relief and for Damages (the "Complaint") of plaintiff E-BEAM Services, Inc. ("E-BEAM") as follows:

1. Deny the allegations contained in the "Introduction" to the Complaint.

2. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 1 of the Complaint.

3. Admit the allegations in paragraph 2 of the Complaint.

4. Admit the allegations in paragraph 3 of the Complaint.

5. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 4 of the Complaint, except admit that Iotron operates electron beam facilities and that Iotron acquired certain rights to the IMPELA® technology.

6. Deny the allegations in paragraph 5 of the Complaint.

7. Admit the allegations in paragraph 6 of the Complaint.

8. Deny the allegations in paragraph 7 of the Complaint, except admit that AECL installed and commissioned a 10 Million Electron Volt IMPELA® electron beam accelerator at E-BEAM's Cranbury, New Jersey facility and that Iotron has performed certain servicing of the IMPELA® at E-BEAM's Cranbury facility. The defendants deny knowledge or information sufficient to form a belief as to the truth of the allegations concerning E-BEAM's business in paragraph 7 of the Complaint and refer to the Lease for the terms thereof.

9. Deny the allegations in paragraph 8 of the Complaint and refer to the Complaint for the allegations made therein.

10. Deny the allegations in paragraph 9 of the Complaint.

11. Deny knowledge or information sufficient to form a belief as to the

truth of the allegations in paragraph 10 of the Complaint, except admit that electron beam processing is an established manufacturing procedure.

12. Deny the allegations in paragraph 11 of the Complaint, except admit that an electron beam processing facility may consist of an electron beam accelerator which is enclosed in a structure having five to nine foot thick concrete walls used for radiation shielding purposes, a control room with sophisticated electronic gear, a product conveyor system and various auxiliary equipment.

13. Deny the allegations in paragraph 12 of the Complaint, except admit that an accelerator creates a beam of electrons through which a product being irradiated passes and that a conveyor system transports the products at a specified speed to allow for the appropriate "dose" of radiation.

14. Deny the allegations in paragraph 13 of the Complaint, except admit that E-BEAM and AECLT entered into a Lease in or about August 1990 and refer to the Lease for the terms thereof.

15. Deny the allegations in paragraph 14 of the Complaint, except admit that AECL executed a document entitled "Guarantee" on or about July 31, 1990 and refer to the Guarantee for the terms thereof.

16. Deny the allegations in paragraph 15 of the Complaint and refer to the Lease for the terms thereof.

17. Deny the allegations in paragraph 16 of the Complaint and refer to the Lease for the terms thereof.

18. Deny the allegations in paragraph 17 of the Complaint and refer to the Lease for the terms thereof.

19. Deny the allegations in paragraph 18 of the Complaint, except admit that to date E-BEAM has not exercised its right under section 3.6.1 of the Lease. and refer to the Lease for the terms thereof.
20. Deny the allegations in paragraph 19 of the Complaint.
21. Deny the allegations of paragraph 20 of the Complaint, except admit that AECL is a Canadian government owned corporation employing over 3,800 employees whose business includes designing and developing nuclear power electricity generating stations.
22. Admit the allegations in paragraph 21 of the Complaint.
23. Admit the allegations in paragraph 22 of the Complaint.
24. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 23 of the Complaint.
25. Admit the allegations in paragraph 24 of the Complaint.
26. Deny the allegations in paragraph 25 of the Complaint, except admit that AECL hoped to become a major manufacturer and seller of commercial electronic beam accelerators.
27. Deny the allegations in paragraph 26 of the Complaint, except admit that a Lease was negotiated and refer to the Lease for the terms thereof.
28. Admit the allegations in paragraph 27 of the Complaint and refer to the Lease for the details of the execution thereof.
29. Deny the allegations in paragraph 28 of the Complaint and refer to the Lease for the terms thereof.
30. Deny the allegations in paragraph 29 of the Complaint, except

deny knowledge or information sufficient to form a belief as to the truth of the allegations concerning E-BEAM's business.

31. Deny the allegations in paragraph 30 of the Complaint.
32. Admit the allegations in paragraph 31 of the Complaint.
33. Deny the allegations in paragraph 32 of the Complaint, except admit that AECL has made repairs and provided certain maintenance on the IMPELA® accelerator.
34. Deny the allegations in paragraph 33 of the Complaint, except admit that the Lease requires monthly payments by E-BEAM and refer to the Lease for the terms thereof.
35. Deny the allegations in paragraph 34 of the Complaint.
36. Deny the allegations in paragraph 35 of the Complaint and refer to the Lease for the terms thereof.
37. Deny the allegations in paragraph 36 of the Complaint.
38. Deny the allegations in paragraph 37 of the Complaint.
39. Deny the allegations in paragraph 38 of the Complaint.
40. Deny the allegations in paragraph 39 of the Complaint.
41. Deny the allegations in paragraph 40 of the Complaint.
42. Deny the allegations in paragraph 41 of the Complaint and refer to the Lease for the terms thereof.
43. Deny the allegations in paragraph 42 of the Complaint.
44. Deny the allegations in paragraph 43 of the Complaint, except admit that AECL sold an IMPELA® accelerator to Iotron.

45. Deny the allegations in paragraph 44 of the Complaint.

46. Deny the allegations in paragraph 45 of the Complaint and refer to the Lease for the terms thereof.

47. Deny the allegations in paragraph 46 of the Complaint.

48. Deny the allegations in paragraph 47 of the Complaint, except deny knowledge or information sufficient to form a belief as to the truth of the allegations concerning E-BEAM's business and refer to the Lease for the terms thereof.

49. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 48 of the Complaint.

50. Deny the allegations in paragraph 49 of the Complaint.

51. Deny the allegations in paragraph 50 of the Complaint.

52. Deny the allegations in paragraph 51 of the Complaint.

53. Deny the allegations in paragraph 52 of the Complaint.

54. Deny the allegations in paragraph 53 of the Complaint.

55. Deny the allegations in paragraph 54 of the Complaint, except admit that AECL met with Iotron in 2000.

56. Deny the allegations in paragraph 55 of the Complaint, except deny knowledge or information sufficient to form a belief as to the allegations concerning E-BEAM's and Iotron's businesses.

57. Deny the allegations in paragraph 56 of the Complaint, except deny knowledge or information sufficient to form a belief as to the allegations concerning E-BEAM's business and admit that E-BEAM did not give its written consent to an assignment of the Lease to Iotron.

58. Deny the allegations in paragraph 57 of the Complaint.
59. Deny the allegations in paragraph 58 of the Complaint, except admit that AECL sold certain aspects of its accelerator business to Iotron in or about July 2001.
60. Deny the allegations in paragraph 59 of the Complaint.
61. Deny the allegations in paragraph 60 of the Complaint.
62. Deny the allegations in paragraph 61 of the Complaint.
63. Deny the allegations in paragraph 62 of the Complaint, except admit that Iotron has performed certain service and repair functions on the IMPELA® accelerator leased by E-BEAM.
64. Deny the allegations in paragraph 63 of the Complaint, except admit that the IMPELA® accelerator requires a klystron to operate and that the only manufacturer of klystrons is located in France and refer to the Lease for the terms thereof.
65. Deny the allegations in paragraph 64 of the Complaint, and refer to the Lease for the terms thereof.
66. Deny the allegations in paragraph 65 of the Complaint, except deny knowledge or information sufficient to form a belief as to the truth of the allegations concerning E-BEAM's business.
67. Deny the allegations in paragraph 66 of the Complaint, except admit that Ian Hastings of AECL wrote E-BEAM on or about May 6, 2002.
68. Deny the allegations in paragraph 67 of the Complaint.
69. Deny the allegations in paragraph 68 of the Complaint, except deny knowledge or information sufficient to form a belief as to the truth of the allegations



concerning discussions between E-BEAM and Mark Simpson.

70. Deny the allegations in paragraph 69 of the Complaint, except admit that E-BEAM lacks adequately skilled operators.

71. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 70 of the Complaint.

72. Deny the allegations in paragraph 71 of the Complaint.

73. Deny the allegations in paragraph 72 of the Complaint, except admit that the Lease does not allow for the "half day availability adjustment" claimed by E-BEAM and that AECL requested an audit of E-BEAM's records concerning the IMPELA® accelerator leased by E-BEAM as permitted by the Lease.

74. Deny the allegations in paragraph 73 of the Complaint, except admit that E-BEAM owes AECL more than \$721,000 pursuant to the Lease, that E-BEAM's use of the IMPELA® accelerator to process Teflon® products constitutes a misuse of the accelerator and that counsel for AECL and AECLT informed E-BEAM of this by letter dated April 17, 2001.

75. Deny the allegations in paragraph 74 of the Complaint and refer to the Ernst & Young report for the terms thereof.

76. Deny the allegations in paragraph 75 of the Complaint, except admit that E-BEAM sent a document to counsel for AECL dated June 14, 2001 and refer to the June 14, 2001 report for the terms thereof.

77. Deny the allegations in paragraph 76 of the Complaint.

78. Admit the allegations in paragraph 77 of the Complaint, except deny that the invoice dated April 30, 2002 is the most recent comprehensive invoice.

79. Deny the allegations in paragraph 78 of the Complaint.

80. Deny the allegations in paragraph 79 of the Complaint, except admit that by letter dated March 14, 2002 AECLT gave notice to E-BEAM of termination of the Lease.

**ANSWER TO COUNT ONE**  
**(Declaratory and Injunctive Relief to Prevent Termination of Lease)**

81. To the extent that paragraph 80 of the Complaint repeats and realleges the allegations contained in paragraphs 1 through 79, the defendants repeat and reallege their prior responses.

82. Paragraph 81 of the Complaint states conclusions of law to which no responsive pleading is required. To the extent a responsive pleading is required, defendants deny the allegations in paragraph 81 of the Complaint.

83. Deny the allegations in paragraph 82 of the Complaint and refer to the Lease and to the March 14, 2002 letter for the terms thereof.

84. Deny knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 83 of the Complaint.

85. Deny the allegations in paragraph 84 of the Complaint.

86. Deny the allegations in paragraph 85 of the Complaint.

87. Deny the allegations in paragraph 86 of the Complaint.

88. Deny the allegations in paragraph 87 of the Complaint.

**ANSWER TO COUNT TWO**  
**(Breach of Lease; Claim for Monetary Damages)**

89. To the extent that paragraph 88 of the Complaint repeats and realleges the allegations contained in paragraphs 1 through 87, the defendants repeat and

reallege their prior responses.

90. Deny the allegations in paragraph 89 of the Complaint and refer to the Lease for the terms thereof.

91. Deny the allegations in paragraph 90 of the Complaint.

92. Deny the allegations in paragraph 91 of the Complaint.

93. Deny the allegations in paragraph 92 of the Complaint.

94. Deny the allegations in paragraph 93 of the Complaint.

**ANSWER TO COUNT THREE**

**(Breach of Duty of Good Faith and Fair Dealing; Claim for Monetary Damages)**

95. To the extent that paragraph 94 of the Complaint repeats and realleges the allegations contained in paragraphs 1 through 93, the defendants repeat and reallege their prior responses.

96. Deny the allegations in paragraph 95 of the Complaint and refer to the Lease for the terms thereof.

97. Deny the allegations in paragraph 96 of the Complaint.

98. Deny the allegations in paragraph 97 of the Complaint.

99. Deny the allegations in paragraph 98 of the Complaint.

**ANSWER TO COUNT FOUR**

**(Tortious Interference with Contract and Prospective Economic Advantage;  
Claim for Injunctive Relief and Monetary Damages)**

100. To the extent that paragraph 99 of the Complaint repeats and realleges the allegations contained in paragraphs 1 through 98, the defendants repeat and reallege their prior responses.

101. Deny the allegations in paragraph 100 of the Complaint and refer

to the Lease for the terms thereof.

- 102. Deny the allegations in paragraph 101 of the Complaint.
- 103. Deny the allegations in paragraph 102 of the Complaint.
- 104. Deny the allegations in paragraph 103 of the Complaint.
- 105. Deny the allegations in paragraph 104 of the Complaint.

**AFFIRMATIVE DEFENSES**

**As and For a First Affirmative Defense**

- 106. Plaintiff has failed to state a cause of action upon which relief can be granted.

**As and For a Second Affirmative Defense**

- 107. Plaintiff has unclean hands.

**As and For a Third Affirmative Defense**

- 108. Plaintiff's claims are barred by the doctrines of laches and/or waiver and/or estoppel.

**As and For a Fourth Affirmative Defense**

- 109. Plaintiff's claims are barred by plaintiff's prior material breach of the Lease.

**As and For a Fifth Affirmative Defense**

- 110. Plaintiff failed to mitigate its damages.

**As and For a Sixth Affirmative Defense**

- 111. Plaintiff's damages claims violate the limits on such damages provided by the Lease.

**As and For a Seventh Affirmative Defense**

112. Plaintiff's claims are barred by the statutes of limitations.

**COUNTERCLAIMS**

Defendants AECL and AECLT, as and for their counterclaims, allege upon knowledge as to themselves and their own actions and upon information and belief as to all other matters, as follows:

**FACTS COMMON TO ALL COUNTS**

**Entering into the lease of the IMPELA®**

1. In or about 1970, AECL began designing and manufacturing electron beam accelerators for medical therapy. An electron beam accelerator is a device that accelerates electrons to desired speeds and then discharges those electrons, either as a beam for cancer therapy, or in the form of a vertical "curtain" to irradiate products being passed through that curtain. Products are irradiated with electrons in order to achieve various purposes, including to sterilize a product, to enhance the product's physical structure by increasing the product's toughness or even its melting point, and to destroy the molecular structure of a product completely ("degradation"). Prior to 1985, electron irradiation had been used in industry in the manufacture of products such as shrink wrap films, tires, wire and cable, and also for the degradation of Teflon. These products were thin, so that electron irradiation only required accelerators of energies less than 4.5 million electron volts ("MeV").

2. In or about 1985, AECL designed and created a new type of accelerator which would permit the use of electron beams to sterilize medical products, called the IMPELA® accelerator (the "IMPELA®"). The IMPELA® had an energy of

10 MeV and was thus more penetrating than other industrial accelerators. The IMPELA® had a maximum power exceeding 10 kilowatts ("kW"), which was, at the time, the highest power available in the world.

3. At or about the same time, E-BEAM was one of the few companies in the world that used a 4.5 MeV accelerator for medical product sterilization. E-BEAM represented that it wished to expand its medical products sterilization business and process medical products with a wider range of package thickness than they could process with only a 4.5 MeV accelerator. At the same time, AECL wanted to sell electron accelerators into the medical products sterilization market. As such, AECL and E-BEAM began negotiations for the lease of the IMPELA®.

4. On or about August 2, 1990, AECL Inc. (now AECL Technologies, Inc. or "AECLT"), a wholly-owned subsidiary of AECL, and E-BEAM entered into a lease (the "Lease") of the IMPELA®. On or about July 31, 1990, AECL executed a guarantee relating to the Lease.

5. The Lease was for a term of 15 years, commencing on July 1, 1990 and expiring on June 30, 2005. Under the Lease, AECLT was obligated to install, commission and test the IMPELA®. E-BEAM was obligated to construct the building and shielding to house the IMPELA®, to provide the necessary services such as power, water and cooling, and to buy and install the conveyor that would shuttle the products through the electron beam. The Lease provided for the transfer of the operation of the IMPELA® to E-BEAM after the completion of certain tests specified in the Lease. On or about October 31, 1992, (the "Operation Transfer Date") operation of the IMPELA® was transferred to E-BEAM.

6. As this was the first IMPELA® leased by AECLT, the Lease acknowledged that the IMPELA® at E-BEAM's facility would be a showcase unit and that AECL could use the IMPELA® at E-BEAM's facility to market the IMPELA® technology to other potential clients. AECL thus expected to utilize the E-BEAM facility as a demonstration ground to allow it to sell and lease additional IMPELA® units.

7. E-BEAM's actions described below, including its improper operation of the IMPELA®, failure to have qualified operators, failure to properly maintain its external systems, and intentional creation of "downtime" and "failed days", have frustrated AECL's ability to use the IMPELA® as a model or to promote the IMPELA® technology. As a result, the IMPELA® market was adversely impacted.

**Failure by E-BEAM to Remit Rental Payments to AECLT in Accordance with the Terms of the Lease**

8. The Lease provides that, upon the transfer of operation of the IMPELA® to E-BEAM, E-BEAM shall make certain rental payments to AECLT for its use of the IMPELA®. The Lease sets out explicit and detailed formulae for the calculation of these rental payments.

9. For the period between the Operation Transfer Date and a date called the "In Service Date", the Lease provided for a fixed rent of \$65 for each hour that the IMPELA® was used to perform "Commercial Work", as defined. The In-Service Date occurred in or about November 1992. "Commercial Work" is defined under the Lease as "activities carried out by [E-BEAM] using the [IMPELA®], for which payment or other tangible benefit is received." The rental payments between the Operation Transfer Date and the In-Service Date are not presently in dispute between the parties.

10. For the period commencing after the "In Service Date", the Lease

does not provide for a fixed rent, but instead sets out a formula for calculating rental payments.

11. Under the Lease, rental charges are calculated on a quarterly basis. Section 3.5.4.1 provides that, for the first two months of each calendar quarter, E-BEAM must pay AECL for a set minimum number of hours. The amount of that payment is 25% of the last price per hour charged by E-BEAM to its customers multiplied by the minimum number of hours.

12. For the third and last month of each calendar quarter, E-BEAM must pay AECLT a "Quarterly Rent Charge", less the amount of the first two months' payments. Under section 3.5.2 of the Lease, this quarterly rental charge is computed as follows:

$$\begin{array}{rcl}
 \text{Quarterly rental charge} = & & \text{chargeable beam hours} \\
 & \times & \text{price per beam hour} \\
 & \times & \text{exclusivity adjustment} \\
 & - & \text{demand charge correction} \\
 & - & \text{electrical efficiency} \\
 & & \text{correction} \\
 & - & \text{availability adjustment}
 \end{array}$$

13. As reflected in the formula from section 3.5.2 set out above, the quarterly rental charge is calculated by multiplying the number of hours in a particular quarter during which the accelerator was used to earn revenue (the chargeable beam hours), by the price per hour (as determined according to another series of formulae). The quarterly rental charge arrived at above is then adjusted to take into account several factors: (1) an exclusivity factor, which compensates E-BEAM should AECLT ship another IMPELA® accelerator to a competitor within a certain geographical radius of E-BEAM's operations; (2) a demand charge adjustment factor, which takes into account the



maximum electrical power demand that the IMPELA® imposes on the electricity grid and hence the charges that E-BEAM incurs on its electricity bill; (3) an electrical efficiency adjustment factor, which compensates either AECLT or E-BEAM for exceeding or failing to meet a benchmark electrical efficiency figure agreed to by the parties; and (4) an availability adjustment factor (the "availability adjustment"), which compensates E-BEAM in those situations where the accelerator experiences "downtime", as defined under the Lease.

14. The Lease clearly sets out a three-step method for calculating the fourth factor above, that is, the availability adjustment.

15. First, the amount of "downtime" must be calculated. Under Appendix G to the Lease, "downtime" is only taken into account if it constitutes a period of time during which the IMPELA® is unable to perform Commercial Work, or where there is a "momentary failure" causing a short interruption to the operation of the IMPELA®. The Lease contains formulae for calculating the amount of downtime, depending on whether the downtime occurs while the IMPELA® is in "run" mode, or is in power off/warm-up/ready mode. The formulae also distinguish downtime due to a "momentary failure." As defined, downtime is not assessed in those situations where the IMPELA® operates at less than its nominal maximum power of 50 kW. Indeed, as the power of the IMPELA® was so much greater than any other comparable accelerator at the time the Lease was executed, it was understood that if the IMPELA® was performing or could perform Commercial Work, it would be fulfilling its function and could not therefore be "down" for the purposes of calculating "downtime".

16. Second, based on the amount of downtime on any given day, each

day of operation is rated as a "passed" day or a "failed day".

17. Third, the availability adjustment factor is then calculated based on the number of passed and failed days.

18. Appendix G to the Lease also provides that the availability adjustment will be set at zero in the situation where the availability adjustment is of *de minimis* significance, or where the interruptions causing the downtime are the result of events outside the control of AECLT, or are due to E-BEAM's negligence.

19. Together, the formulae and methodology set out above for calculating the quarterly rental charge and, specifically, the three steps described above for calculating the availability adjustment, constitute the exclusive method for determining E-BEAM's rental payments under the Lease. These terms of the Lease dealing with the calculation of the availability adjustment and the quarterly rental charge have never been amended or modified.

20. Under the Lease, E-BEAM is solely responsible for the tabulation of the number of hours and all calculations pertaining to the rental payments owed to AECLT. Accordingly, AECLT has always relied on E-BEAM to accurately report the availability of the IMPELA® for Commercial Work, and the basis for calculating the availability adjustment.

21. No later than 1996, and without the knowledge of AECLT, E-BEAM began remitting rental payments to AECLT which were not calculated in accordance with the terms of the Lease. In particular, E-BEAM purposely remitted rental payments which were based, without the knowledge of AECLT, on an incorrect calculation of the availability adjustment. These incorrect calculations only later became

evident after an independent audit.

22. In 1998, AECLT first discovered that E-BEAM had unilaterally changed the manner by which it calculated the availability adjustment and was therefore remitting an incorrect, and consistently too low, quarterly rental charge to AECLT.

23. In 1998, AECLT advised E-BEAM representatives that AECLT thought that E-BEAM was not properly calculating the availability adjustment and that it objected to E-BEAM's calculations. In response, E-BEAM misleadingly claimed that it was calculating the availability adjustment in accordance with the formulae in the Lease. Subsequent to this exchange, AECLT continued to object to E-BEAM's calculation of the availability adjustment, but E-BEAM continued to misleadingly assure AECLT that it was in compliance with the provisions of the Lease.

24. Due to the parties' inability to resolve their differences over the availability adjustment, AECLT exercised its right under the Lease to audit E-BEAM's rental payments and commissioned independent accountant Ernst & Young to conduct specified audit procedures regarding E-BEAM's calculation of the availability adjustment. On March 28, 2001, after it had conducted a review of E-BEAM's reports, Ernst & Young LLP delivered a report entitled "Specified Audit Procedures on Agreement between E-BEAM Services Incorporated and Atomic Energy Canada Limited signed July 31, 1990" (the "E&Y Report"). Based on a review of the quarterly rental charges remitted by E-BEAM for each of the quarters in the years 1997 to 2000 inclusive, the E&Y Report concluded that E-BEAM had incorrectly calculated the availability adjustment by, among other things:

- (a) unilaterally adopting a method of claiming a half-failed day

whenever the IMPELA® operated at less than the IMPELA®'s theoretical maximum power of 50 kW, in breach of the express terms of section 3.5 of the Lease;

- (b) incorrectly accounting for momentary interruptions;
- (c) incorrectly accounting for the failure of the IMPELA® arising from factors exclusively under E-BEAM control, such as the power supply to the building, the conveyor belt and the safety system;
- (d) incorrectly accounting for IMPELA® failure caused by E-BEAM operator error and negligence in the operation of the IMPELA® in a manner contrary to section 3.4 of the Lease; and
- (e) incorrectly applying clause 10 of Appendix G, which provides that interruptions occurring after the fifth passed day of a given work week will not be counted as downtime.

25. Based on its audit, Ernst & Young LLP concluded that E-BEAM had unjustifiably claimed an availability adjustment over the relevant period amounting to \$554,717. This amount excluded any additional availability adjustments claimed by AECLT for downtime which had been caused by E-BEAM's own improper use of the IMPELA® (as set forth below), which additional adjustments were valued by the E&Y Report at \$166,812. Taking into account these additional unjustified availability adjustments for downtime caused by E-BEAM's improper use of the IMPELA®, the E&Y Report concluded that, over the period under review, E-BEAM had incorrectly

claimed availability adjustments totaling \$721,529.

26. On April 17, 2001, counsel for the defendants sent a letter to E-BEAM enclosing the E&Y Report and advising E-BEAM that it owed AECLT \$721,529 for unjustified availability adjustment claims. E-BEAM has failed and/or refuses to pay the amount of \$721,529 owing to AECLT. To the contrary, on or about June 14, 2001, E-BEAM sent to AECLT a report entitled "AECL Quarterly Rental Charge Comparison Review of the Period January 1, 1997 to October 30, 2000" (the "E-BEAM Report"), authored, not by an independent auditor, but by two of E-BEAM's own employees – both of whom served as administrative clerks with little or no knowledge about the IMPELA® or its operations. Instead of acknowledging the incorrect availability adjustment calculations, the E-BEAM Report claimed that AECLT actually owed E-BEAM close to \$100,000.00.

27. Further, even after AECLT's demand for payment of the \$721,529 in unjustified availability adjustment claims, as supported by the E&Y Report, E-BEAM continued to submit quarterly rental payments which were calculated in contravention of section 3.5 of the Lease.

28. Upon information and belief, E-BEAM intentionally caused, and continues to cause, failed days and downtime to attempt to decrease the amounts due under the Lease. This results in increased maintenance costs and damage to the accelerator.

29. In or about March 2002, AECLT's independent contractor, Iotron Industries Canada, Inc. ("Iotron"), delivered a report to AECLT which set out Iotron's analysis of the availability adjustments claimed by E-BEAM for the third and fourth

quarters of 2001 (August to December 2001). Based on Iotron's analysis and based upon a further analysis of E-BEAM's availability adjustment claims for January 2002, AECLT sent a letter to E-BEAM on March 19, 2002 advising E-BEAM that it owed AECLT \$263,788.13 in outstanding payments for the third and fourth quarters of 2001 and for January 2002, and demanding payment of this amount. E-BEAM has failed to and/or refuses to pay this amount.

30. Furthermore, from November 19, 2001 up to and including August 21, 2002, AECLT has issued monthly invoices to E-BEAM pursuant to the Lease. E-BEAM has failed and/or refused to pay the amounts set forth in those invoices.

**Failure by E-Beam to Provide Properly Trained Staff to Operate the IMPELA® and Failure to Provide and Maintain Adequate External Support Systems for the IMPELA®**

31. Section 3.4(i) of the Lease requires E-BEAM to "provide personnel, who have passed an Accelerator operator's examination set by [AECLT] to operate the Accelerator in a safe, reliable and prudent manner in accordance with the operator instructions provided by [AECLT] for the Accelerator." Section 3.4(iv) also requires E-BEAM to "undertake, at its own cost, all Routine Maintenance as reasonably identified by [AECLT], with Accelerator parts supplied by [AECLT]." "Routine Maintenance" is defined in section 1.1 of the Lease to mean "Accelerator maintenance which can be performed by following a written procedure that [AECLT] has provided to [E-BEAM], that [AECLT] has approved [E-BEAM] to perform, and that [E-BEAM] has accepted that it can perform."

32. E-BEAM has failed and /or refused to assign properly qualified or trained staff to operate the IMPELA® as required by section 3.4(i).

33. Unlike other customers of AECLT or other accelerator operators, E-BEAM does not use technically trained or qualified personnel to operate the IMPELA®. As such, E-BEAM has not been able to perform the most routine maintenance of the IMPELA®, necessitating AECLT to dispatch personnel to conduct maintenance and service on the IMPELA® at great expense to AECLT, even though many of the problems have been minor and have not required the services of anyone with specific expertise in accelerator repair.

34. Despite its lack of technical expertise, E-BEAM has failed to properly train its employees or to ensure that they are properly trained. Despite many offers by employees of AECLT to demonstrate how to repair or operate the IMPELA®, E-BEAM employees have steadfastly refused to learn for themselves the requisite techniques. Instead, E-BEAM insists that AECLT provide personnel to service and maintain the IMPELA® in a manner that is inconsistent with E-BEAM's own obligations under section 3.4(iv) of the Lease.

35. As an example of E-BEAM's complete indifference to learning about the operation of the IMPELA®, in or around 1999, a technician employed by AECLT, Mark Simpson, collaborated with E-BEAM to organize a class to train E-BEAM employees about the operation of the IMPELA®. Mr. Simpson worked with E-BEAM to write a curriculum for this class. At that time, E-BEAM employed an electrical engineer on its staff, Armand Balekdijan, and another employee, Tony Lynch. At AECLT's request, E-BEAM dedicated both these employees to learning how to service the IMPELA®. Classroom training commenced in or about early 2000. However, despite AECLT's attempts at this formal instruction, E-BEAM's employees remained

disinterested in acquiring knowledge of how to use the IMPELA®. In fact, Mr. Balekdijan repeatedly fell asleep during classes. E-BEAM later terminated Mr. Balekdijan, and Mr. Lynch, the only other person assigned to learn how to maintain the IMPELA®, resigned shortly thereafter.

36. In addition to ignoring (or sleeping through) classroom instruction, E-BEAM has ignored or refused opportunities for hands-on training. For example, in 1999, E-BEAM employees ignored or refused Mr. Simpson's suggestion that E-BEAM employees observe and/or participate in a scan window change so that E-BEAM would learn itself how to perform this task.

37. As a further example, in July 2000, Mr. Simpson suggested to E-BEAM employees that they participate in the installation and conditioning of a component of the IMPELA® called a "klystron" (described in paragraph 41 below), that Mr. Simpson planned to install in the IMPELA® and to condition. However, no E-BEAM personnel accepted the offer or took part in the installation and conditioning of the klystron.

38. Due to the failure by E-BEAM to employ properly qualified or motivated staff and to train its staff on the use of the IMPELA® or to ensure that they were so properly trained, E-BEAM has failed to take reasonable and proper care of the IMPELA®, and AECLT has consequently been required to perform the most rudimentary tasks on its maintenance visits. Also, as set out in greater detail below, due to the failure by E-BEAM to employ properly qualified staff and to train its staff on the use of the IMPELA®, many problems that have arisen with the IMPELA® would have been avoided. For example, at E-BEAM's facility, at least 4 klystrons have failed



between June 2000 and July 2002. As explained below, klystrons are expensive, as is their installation. These klystron failures would have been avoided or substantially minimized had E-BEAM staff allowed themselves to be trained in proper IMPELA® operation.

39. In addition to the inadequate staff, E-BEAM has not properly maintained the external support systems (for which it bears responsibility) for the IMPELA®. The improper maintenance of these external systems has resulted in shutdowns of the IMPELA® and damaged the accelerator.

40. For example, the improper maintenance of these external systems has resulted in "safety shutdowns" at the E-BEAM facility. The frequency of these shutdowns has damaged the IMPELA® and impaired its operation.

**E-BEAM's Destruction of the Klystron in Breach of the Lease**

41. A "klystron" is an integral part of the IMPELA®. Its function is to generate the radio frequency power which excites the electron accelerating cavity in the IMPELA®. According to the manufacturer, a klystron typically has a lifetime of approximately 15,000 hours of operation. If the IMPELA® operates on a standard two shifts per day, 15,000 hours of operation equates to at least three years' worth of operation. A klystron costs approximately \$150,000 to \$200,000.

42. In or around June 2000, the klystron in the IMPELA® failed. Using a replacement klystron imported from France, AECLT personnel installed the newly imported klystron on or around July 13, 2000 (the "Replacement Klystron I"). E-BEAM's employees chose not to participate in the installation or startup of the Replacement Klystron I.

43. In or around August 2000, E-BEAM advised AECLT that the Replacement Klystron I had failed, after only operating for a very limited number of hours. Again, AECLT had to install a new klystron (the "Replacement Klystron II").

44. On September 5, 2001, E-BEAM advised AECLT that the Replacement Klystron II had failed, after operating for only a small fraction of its expected lifetime. To allow the IMPELA® to return to operation as soon as possible, AECLT re-installed the Replacement Klystron I, which had been repaired and fully reconditioned by AECLT after it had been replaced in August 2000 (as repaired and re-installed, the "Replacement Klystron III").

45. Due to the disturbing frequency of klystron failure being reported by E-BEAM, AECLT submitted the Replacement Klystron II for examination by the manufacturer, Thales Electron Devices ("Thales"). After conducting its examination, Thales delivered a report (the "Thales Report") which identified operator error as the cause of the damage to the klystron. Specifically, the Thales Report concluded that the fourth cavity of the klystron had melted due to the improper operation of the IMPELA®.

46. Based on the failure of the Replacement Klystron II, AECLT wrote a letter to E-BEAM on November 21, 2001 and expressed its concern that E-BEAM's personnel were not properly qualified or trained. The letter reiterated several earlier requests that E-BEAM provide confirmation in writing that E-BEAM was complying with its obligations under section 3.4 of the Lease, and that it was operating the IMPELA® consistently with its obligations under section 3.4 of the Lease. In its letter, AECLT also requested, pursuant to section 3.4(i) of the Lease, the names and qualifications of E-BEAM personnel operating the IMPELA®.

47. In or around May 2002, E-BEAM advised AECLT that the Replacement Klystron III had suffered a further failure. An examination by Mr. Simpson, who was now employed as a technical manager by AECLT's service contractor, Iotron, concluded that this latest damage to the klystron was also caused by E-BEAM's improper operation of the IMPELA®. Specifically, based on Mr. Simpson's examination, it appeared that the operators employed by E-BEAM had failed to respond to the information provided by the IMPELA®'s Human Machine Interface, which was displayed on the IMPELA®'s control console, and consequently had failed to make the necessary corrections to the klystron during its operation.

48. Section 3.4.1 of the Lease provides that:

Should the Accelerator require Breakdown Maintenance as a result of [E-BEAM] operating the Accelerator in a manner not prescribed by AECL, or as a result of [E-BEAM] making changes to the Accelerator without [AECLT's] approval, or as a result of [E-BEAM] operating the Accelerator in such a manner that damages the Accelerator, then AECL shall repair the Accelerator but all related costs for parts and labor shall be paid by [E-BEAM] to [AECLT] at [AECLT's] commercial rates in effect at the time the repairs are made. No penalties for unavailability, as described in Appendix G, can be levied against AECLT as a result of such unauthorized action by [E-BEAM].

"Breakdown Maintenance" is defined in section 1.1 of the Lease to mean:

Accelerator Maintenance required as a result of a failure which prevents the Accelerator from performing Commercial Work within specification ABU-2-1 Rev. 4, in Appendix I.

49. Based on the Thales Report, on May 6, 2002, AECLT wrote a letter to E-BEAM demanding that E-BEAM immediately reimburse AECLT for AECLT's costs for parts and labor due to the repairs made by AECLT as a result of the failure of the Replacement Klystron II in September 2001, and for any availability

adjustments claimed by E-BEAM based on downtime caused by the klystron failure, and issued an invoice to E-BEAM in the amount of \$154,391.65. E-BEAM failed and/or refused to pay any such costs.

50. Despite these demands for payment, E-BEAM has failed to and refuses to pay AECLT for its costs and labor associated with the replacement of each failed klystron, and rigidly adheres to the availability adjustments which it unjustifiably claimed in respect of these same failures.

**Improper Irradiation of Teflon by E-BEAM**

51. Under the terms of the Lease as set out in Appendix J, AECLT gained the right, after the end of the second year of operation (1994) to terminate the Lease if the rent received by AECLT from E-BEAM for E-BEAM's use of the IMPELA® did not meet an agreed threshold level (the "minimum rental level") for any given year. Appendix J to the Lease sets out the manner for calculating this minimum rental level. The effect of this provision was that, if the business generated by E-BEAM was insufficient to meet the minimum rental level, E-BEAM would either lose the accelerator or have to pay AECLT the difference between the minimum rental level and its actual rental payments.

52. In or around 1995, E-BEAM realized that it was generating insufficient sterilization processing business to meet the minimum rental level under Appendix J to the Lease. In order to meet this minimum threshold level, E-BEAM decided to make unauthorized use of the IMPELA® to degrade Teflon. By using the IMPELA® for Teflon processing business without authorization from AECLT, E-BEAM was able to meet the minimum rental level under Appendix J of the Lease.

53. However, by introducing Teflon processing business to the IMPELA®, E-BEAM contravened the explicit terms of the Lease. In addition, E-BEAM's Teflon processing, which was done without the proper precautions, subjected the IMPELA® to significant physical damage. In the industry, the processing of Teflon is widely known to create a significant quantity of dust and to release highly corrosive fluorine compounds, all of which exerts considerable unintended stresses on the IMPELA®. E-BEAM knew this, yet persisted in degrading Teflon in the IMPELA® without authorization and without taking the proper precautionary measures. In so doing, E-BEAM caused corrosion, created dust accumulation and damaged the IMPELA® to the point where it could not be returned to its original pristine and clean condition. Indeed, AECLT discovered that the ingress of contaminated Teflon, oils and atmospheric gases into the pristine machined cavities of 99.9999% pure copper had seriously compromised the IMPELA®'s operation.

54. Despite E-BEAM's knowledge, and the Lease's provisions, that the IMPELA® was to be used for such benign tasks as medical product sterilization, E-BEAM persisted in Teflon processing.

55. In early 1996, E-BEAM contacted AECLT complaining of a damaged titanium scan window on the IMPELA®. The scan window's function is to separate the high vacuum of the accelerating structure from the surrounding atmospheric pressure, while being sufficiently thin to permit the accelerated electrons to pass through. The IMPELA® uses a thicker scan window than E-BEAM's other accelerators, and a normal scan window for the IMPELA® should last for the life of the IMPELA®.

56. On March 9, 1996, after approximately 3.5 years and 8000 hours

of operation (mostly prior to the E-BEAM's improper irradiation of Teflon), the original window had to be replaced.

57. In or about July 1996, after E-BEAM had begun processing Teflon in earnest (and without authorization or appropriate care), E-BEAM notified AECLT that the scan window had again broken, after only 1012 hours of use. On July 8, 1996, AECLT replaced the scan window.

58. Later in July, E-BEAM again notified AECLT that the scan window had broken, this time after only 212 hours of operation. On July 31, 1996, AECLT replaced the scan window.

59. As a result of the abnormal frequency of these breakages, AECL undertook a metallurgical inspection of the windows. That inspection revealed that all of the windows failed as a result of severe corrosion caused by the processing of Teflon. The corrosive attack by materials generated in the processing of Teflon at the E-BEAM facility was so extensive that the E-BEAM building became corroded and trees which once bordered the plant property were poisoned and died. In addition, AECL and AECLT learned that E-BEAM employees and others present at the plant had developed what is known as "Teflon flu" -- a physically debilitating condition caused by inhalation of Teflon particles. Based on the findings of this inspection, AECLT advised E-BEAM of its findings and instructed E-BEAM to discontinue the irradiation of Teflon.

60. Despite these explicit instructions, E-BEAM failed to take the required corrective measures and continued to improperly irradiate Teflon resulting in another damaged scan window. On December 16, 1996, AECLT again demanded that E-BEAM cease irradiating Teflon until E-BEAM developed ventilation and barrier systems

and took other precautionary measures that would eliminate the damage being done to the IMPELA® accelerator. Ignoring this instruction, E-BEAM continued to irradiate Teflon resulting in further scan window damage and replacements. At least twelve scan windows have been destroyed due to E-BEAM's improper use of the IMPELA®.

61. The continued use of the IMPELA® for improper Teflon degradation has caused significant financial loss for AECLT. While the cost of replacing the scan window itself was not extremely high relative to the costs of operating the IMPELA®, the time to clean the internal parts of the accelerator (which was done when the scan window was replaced) required as much as two weeks of labor in each instance. Also, as AECLT discovered, the ingress of contaminated Teflon, oils and atmospheric gases into the pristine copper machined cavities of the IMPELA®, had seriously compromised the reliability of operation of the IMPELA®.

62. E-BEAM exacerbated the contamination problem by frequently processing scrap Teflon turnings. These scrap Teflon turnings were heavily contaminated by oil, so that when the Teflon was subject to electron irradiation, the result was to release fumes that required both E-BEAM staff and AECLT staff who serviced the IMPELA® to wear respirators at all times. AECLT staff frequently returned to the AECLT's offices after servicing the IMPELA® complaining of respiratory irritations. In addition, moisture would be released by the compressor supplied by E-BEAM to cool the scan window.

63. As a result, the level of contamination inside and outside of the IMPELA® greatly exceeded the levels that would be reasonable for sophisticated electronic equipment. One immediate consequence was that AECL's ability to use the E-

BEAM plant as a showcase to other potential clients was seriously compromised. This contributed significantly to AECL's difficulty in marketing the IMPELA® as a device for medical sterilization and its ultimate need to discontinue the business.

**Termination of the Lease**

64. Because E-BEAM had failed or refused to pay monthly invoices that AECLT issued beginning in November 19, 2001, AECLT demanded that E-BEAM pay AECLT all rental payments due under the Lease, including payments incorrectly withheld by E-BEAM due to its incorrect calculation of the availability adjustment.

65. E-BEAM again refused and continues to refuse to pay AECLT all rental payments due under the Lease. Most recently, E-BEAM refused to pay the August 21, 2002 invoice of \$563,196.

66. Under section 8.6(i) of the Lease, AECLT may terminate the Lease on 90 days written notice to E-BEAM if E-BEAM fails to make a rental payment within 60 days of its due date.

67. Based on the failure by E-BEAM to satisfy AECLT's demand for payment of all rental payments due under the Lease, on March 14, 2002, AECL issued E-BEAM with a notice of termination of the Lease (the "Notice of Termination") pursuant to section 8.6(i) of the Lease and issued a further detailed demand for payment on March 19, 2002.

68. The Notice of Termination has been stayed pending trial of this action. E-BEAM continues to fail to pay the proper amounts owing to AECLT. Over the past several years, notwithstanding its obligations under the Lease, E-BEAM has paid only a mere fraction of the amounts owed to AECLT.



**COUNT ONE**  
**(Breach of Lease and Claim  
for Monetary Damages)**

69. AECL and AECLT repeat and reallege the allegations contained in paragraphs 1 to 68 inclusive as if set forth at length herein.

70. AECLT and E-BEAM are signatories to the Lease.

71. E-BEAM is solely responsible for the tabulation of the number of hours and all calculations pertaining to the payments owed to AECL. Accordingly, AECL has always relied on E-BEAM to accurately report the availability of the IMPELA® for Commercial Work, the amount of downtime, and the basis for calculating the availability adjustment. Section 3.5 of the Lease sets out the manner by which the availability adjustment and the quarterly rental charge is to be calculated. E-BEAM has breached section 3.5 of the Lease by calculating the availability adjustment in a manner inconsistent with the formulae set out in the Lease and failing to pay AECLT all the rental payments due under the Lease. Specifically, E-BEAM breached section 3.5 of the Lease by adopting the following practices when calculating the availability adjustment:

- (a) E-BEAM unilaterally adopted a method of claiming a half-failed day whenever the IMPELA® operated at less than the IMPELA®'s theoretical maximum power of 50 kW;
- (b) E-BEAM incorrectly accounted for momentary interruptions;
- (c) E-BEAM incorrectly accounted for IMPELA® failure of the IMPELA® arising from factors exclusively under E-BEAM control, such as the power supply to the building,

- the conveyor belt and the safety system; and
- (d) E-BEAM incorrectly accounted for IMPELA® failure caused by E-BEAM operator error and operation of the IMPELA® in a manner contrary to section 3.4 of the Lease.
  - (e) E-BEAM incorrectly applied clause 10 of Appendix G in calculating the Unavailability Adjustment.

72. Section 3.4 of the Lease sets out E-BEAM's obligations in relation to the operation of the IMPELA® and the provision of appropriately qualified and trained personnel to operate the IMPELA®. E-BEAM has breached section 3.4 of the Lease in the following manner:

- (a) E-BEAM has refused and/or failed to provide properly qualified and trained employees, to train its employees in the proper operation of the IMPELA®, and to operate the IMPELA® in a manner which is consistent with the operator instructions provided by AECLT for the IMPELA®.
- (b) E-BEAM has operated the IMPELA® in such a manner as to cause damage to the klystron on at least five occasions. In respect of the September 2001 klystron failure and the May 2002 klystron failure, AECLT replaced the failed klystron at its own cost. In breach of section 3.4.1 of the Lease, E-BEAM refuses and/or has failed to satisfy

AECLT's demand that E-BEAM reimburse AECLT for the costs of parts and labor expended by AECLT, and refuses and/or has failed to remit availability adjustments improperly claimed by E-BEAM as a consequence of downtime caused by the same klystron failures.

- (c) E-BEAM has continued to use the IMPELA® (owned by AECLT) to irradiate Teflon in contravention of Appendix L to the Lease, thereby damaging the IMPELA® and, in so doing, significantly impairing its value. E-BEAM refuses to cease this practice despite repeated and express instructions by AECLT forbidding such use.

73. E-BEAM has refused and/or failed to make all payments demanded by AECLT in respect of the above breaches.

74. E-BEAM's breaches and E-BEAM's failure to compensate AECLT for the breaches have caused damage to AECLT.

**COUNT TWO**  
**(Breach of the Implied Covenant of  
Good Faith and Fair Dealing)**

75. AECL and AECLT repeat and reallege the allegations contained in paragraphs 1 to 74 inclusive as if set forth at length herein.

76. As set forth above, E-BEAM and AECLT are parties to the Lease.

77. Pursuant to the Lease, E-BEAM had an affirmative duty of good faith and fair dealing with respect to its relationship with AECLT. E-BEAM was under a duty to deal fairly with AECLT and not to seek to deprive AECLT of the fruits of its

contract with E-BEAM.

78. By making misrepresentations and omissions regarding the basis for its calculation of the availability adjustment, which misrepresentations E-BEAM knew were false and misleading, E-BEAM breached its obligation of good faith and fair dealing.

79. By failing to operate the IMPELA® properly as required by the Lease, by failing to maintain its external systems, and by intentionally causing the IMPELA® to underperform, which actions deprived AECLT of the ability to market the IMPELA® technology and damaged the IMPELA® market, E-BEAM breached its obligation of good faith and fair dealing

80. As a result of E-BEAM's breach of its obligations of good faith and fair dealing, AECLT has suffered substantial damages.

**COUNT THREE**  
**(Declarative and Injunctive Relief to  
Enforce Termination of the Lease)**

81. AECL and AECLT repeat and reallege the allegations contained in paragraphs 1 to 80 inclusive as if set forth at length herein.

82. E-BEAM failed to pay all rental payments due under the terms of the Lease within 60 days of their due date. AECLT was accordingly entitled under section 8.6(i) to issue a notice to E-BEAM terminating the Lease.

WHEREFORE, AECL and AECLT demand:

(1) monetary judgment against E-BEAM in an amount to be determined at trial but in any event, no less than \$2 million, as follows:

A. Compensatory damages;

- B. Consequential damages;
- C. Incidental damages;
- D. Interest;
- E. Costs of suit;
- F. Attorneys' fees; and

(2) declaratory judgment against E-BEAM as follows:

- A. Declaring that E-BEAM has failed to pay all rental payments due under the Lease arising from its incorrect calculation of the availability adjustment and is currently in breach of the Lease;
- B. Declaring that the Notice of Termination is valid and effective;
- C. Directing E-BEAM to allow AECLT to access the facility and remove the IMPELA® within 10 days of entry of judgment; and

(3) such other relief as this Court deems just and proper.

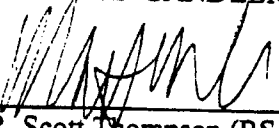
AECL and AECLT demand a jury trial.

Dated: September 19, 2002

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